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Septobasidium annulatum sp. nov. (*Septobasidiaceae*) and *S. kameii* new to China

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Abstract — A new species, *Septobasidium annulatum* on *Rhus potaninii* associated with nymphal stage of a scale insect, is described. It was collected from Shaanxi Province, China. A new Chinese record, *Septobasidium kameii* on *Castanea mollissima* associated with *Diaspidiotus* sp., is provided. It was collected from Anhui Province.

Key words — *Pucciniomycetes*, *Septobasidiales*, taxonomy

All specimens of *Septobasidium* deposited in our herbarium have been re-examined. Among them, a new species on *Rhus potaninii* was collected in Shaanxi Province, China. It was associated with the nymphal stage of a scale insect. We describe the new species as:

Septobasidium annulatum C.X. Lu & L. Guo, **sp. nov.** Figs. 1, 3–8

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Basidiomata resupinata, annulata, 2.5–4.7 cm longa, 2.2–4 cm lata, griseo-brunnea vel brunnea, margine determinata, superficie laevia, in sectione 530–700(–970) µm crassa. Subiculum brunneum, 10–16 µm crassum. Columnae brunneae, 40–50 µm longae, 50–180 µm crassae, ex hyphis 2.5–3 µm latis compositae, interdum columnae nullae. Hymenium hyalinum, 105–320(–580) µm crassum, unistratosum vel 2-stratosum. Probasidia ovoidea vel subglobosa, 10–17 × 7–10.5 µm, hyalina, persistentia. Basidia cyclindrica, curvata, 4-cellularia, 32–39 × 6–7 µm, hyalina. Haustoria ex hyphis irregulariter spiralibus constantia.

Type: On *Rhus potaninii* Maxim. (*Anacardiaceae*): China, Shaanxi, Hanzhong, 15.VII.1990, J.F. Chen, HMAS 59854 (**holotype**), associated with nymphal stage of a scale insect.

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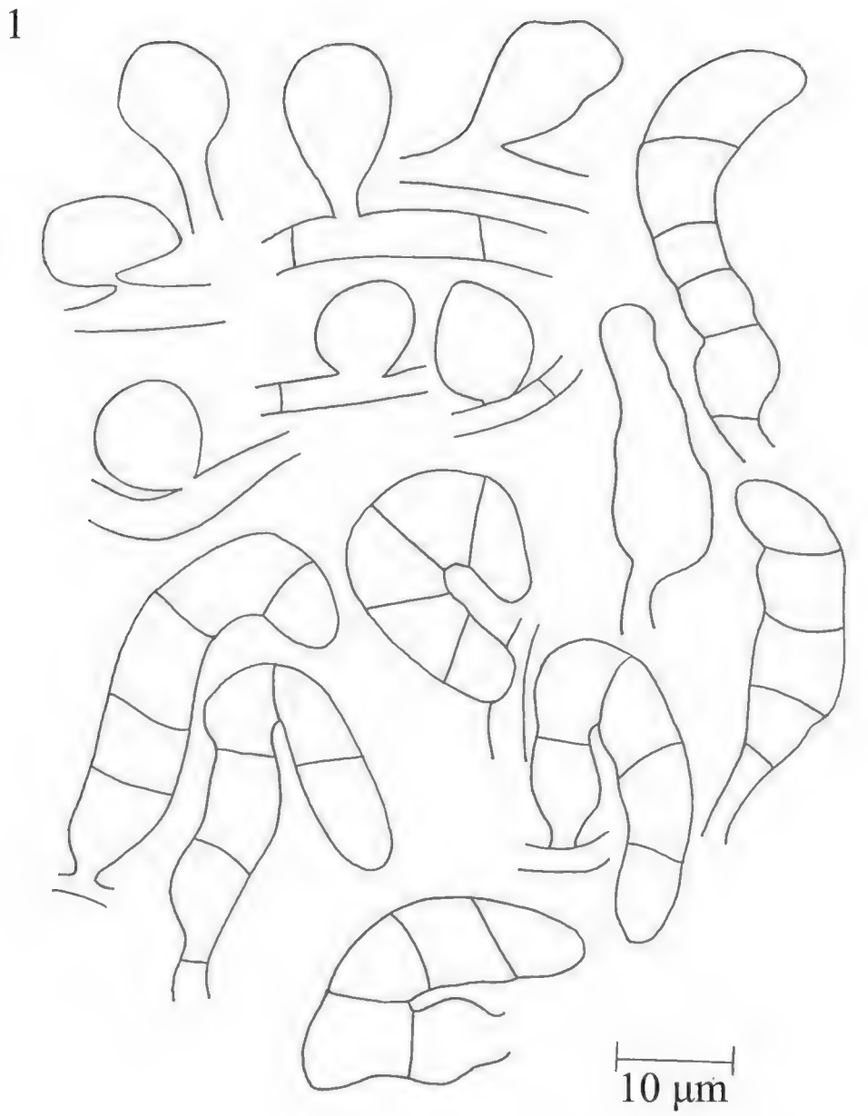


FIG. 1. Probasidia and basidia of *Septobasidium annulatum* (HMAS 59854, holotype).

Basidiomata on branches, resupinate, annulate, 2.5–4.7 cm long, 2.2–4 cm wide, pale greyish brown or brown; margin determinate; surface smooth. In section 530–700(–970) μm thick. Subiculum brown, 10–16 μm thick. Pillars brown, 40–50 μm long, 50–180 μm thick or loosely filled with hyphae; hyphae of pillars 2.5–3 μm thick, pillars branching out to form a layer (150–)390–520 μm thick. Hymenial layer hyaline, 105–320(–580) μm thick, single or 2-stratose. Probasidia ovoid or subglobose, 10–17 × 7–10.5 μm, hyaline; probasidial cell remaining after the formation of the basidia. Basidia cylindrical, curved, 4-celled, 32–39 × 6–7 μm, hyaline. Haustoria consisting of irregularly coiled hyphae. Basidiospores not seen.

REMARKS: The specimen was misidentified as *Septobasidium bogoriense* Pat. 1899. The new species differs from *S. bogoriense* in lacking distinct and tall

pillars and in sometimes having stratified hymenia. It lacks pillars in the young stage and has short, stubby pillars (40–50 μm high) in old stage. It produces annulate basidiomata with a thicker hymenium. This species is similar to *S. citricola* Sawada 1933 but differs in producing annulate, greyish-brown or brown basidiomata, shorter pillars and smaller basidia (32–39 × 6–7 μm). The basidiomata of *S. citricola* are cream, the pillars are 84–126 μm high, and the basidia are 50–60 × 8.2–9.7 μm.

The *Septobasidium* felt fungus is the main disease of chestnuts in Anhui province (Shu et al. 2007). In October 2008, several specimens of *Septobasidium* on *Castanea mollissima* were collected by the senior author and her colleagues. Unfortunately, no basidia were found in these specimens. In April and May of 2009, the same fungus was sent to the authors from Anhui Province. The fungus is identified as *S. kameii*, a new Chinese record:

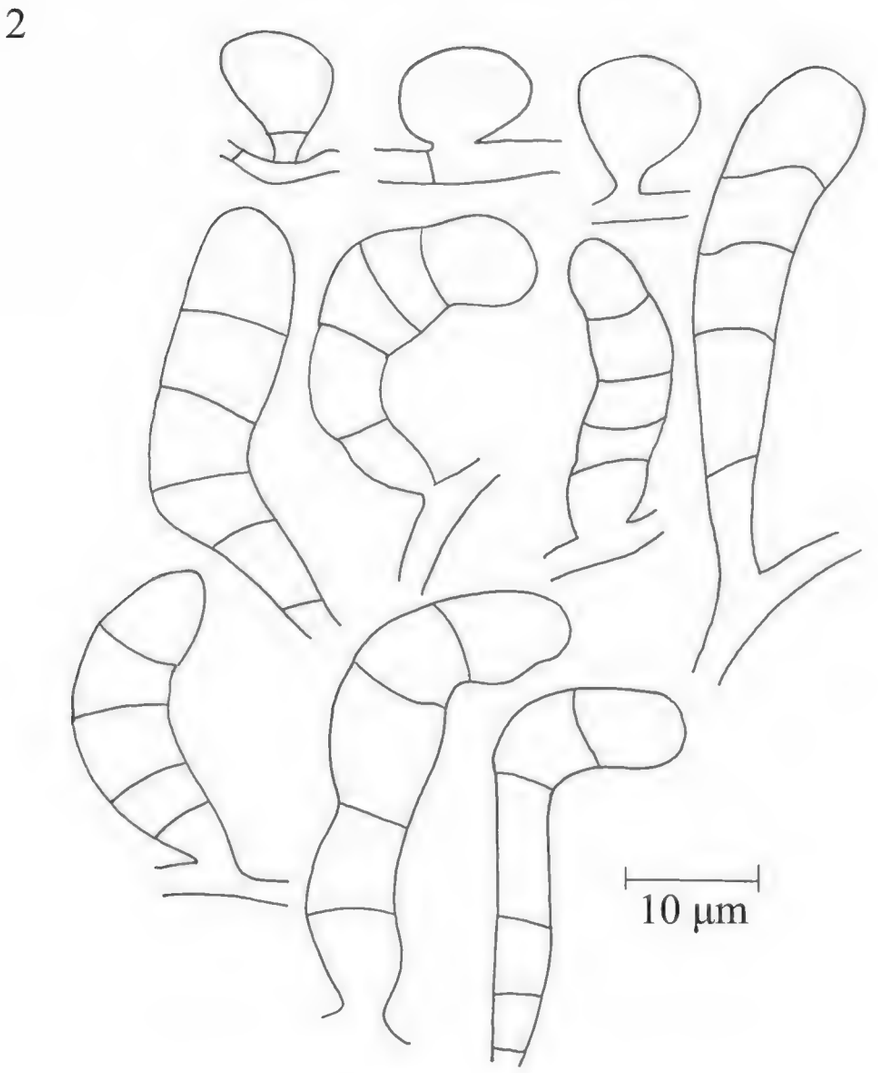
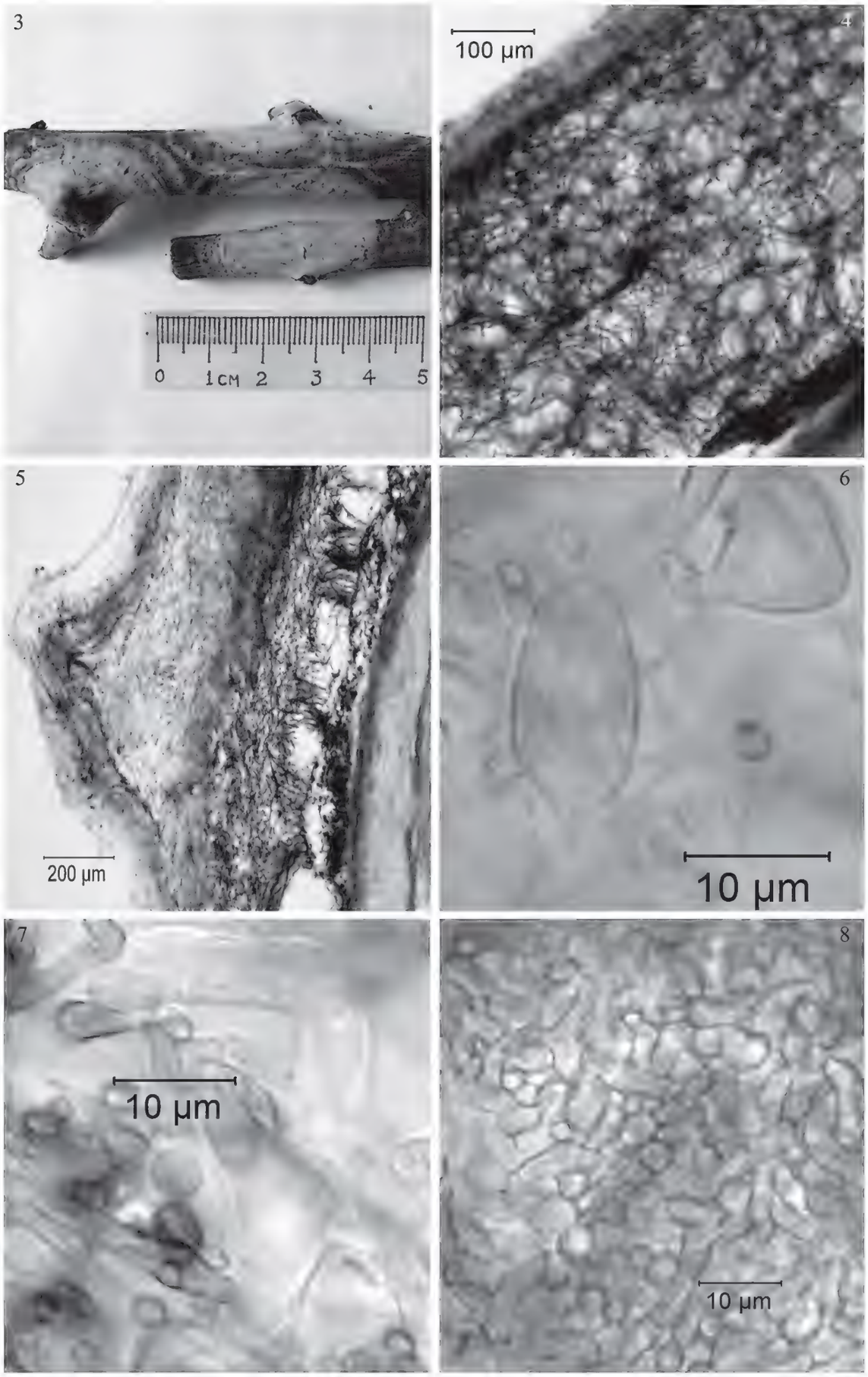


Fig. 2. Probasidia and basidia of *Septobasidium kameii* (HMAS 197040).


3
0 1см 2 3 4 5
4
100 μm
5
200 μm
6
10 μm
7
10 μm
8
10 μm

Septobasidium kameii Kaz. Itô, in Ito & Hayashi, Bull. Govt. For. Exp. Sta. Meguro, Tokyo 134: 56, 1961. FIGS. 2, 9–14

Basidiomata on trunks and branches, often girdling the limbs, resupinate, 5–19 cm long, 2–8 cm wide, sometimes forming long spines; spines 0.3–1 cm long, 0.5–1.5 mm wide, usually branched out at the top, smoke brown or cinnamon-brown; margin determinate; surface smooth in young stage, cracked by irregular fissures in old stage. In section 900–2000 μm thick. Subiculum 70–110 μm thick. Pillars 2–3-stratose, layers 500–740 μm high; hyphae of pillars 3–5 μm thick. Hymenial layer 70–120 μm thick, single or stratose. Probasidia pyriform or subglobose, 9–12 × 8–10 μm, hyaline; probasidial cell remaining after the formation of the basidia. Basidia cylindrical, 4-celled, curved, 22–36 × 5–10 μm, hyaline. Haustoria consisting of irregularly coiled hyphae. Basidiospores not seen.

SPECIMENS EXAMINED: On *Castanea mollissima* Blume (*Fagaceae*), associated with *Diaspidiotus* sp. (*Diaspididae*): China, Anhui, Shucheng, Ganhanhezhen, alt. 70 m, 15.X.2008, S.H. He, Y.F. Zhu & L. Guo 2482, HMAS 196463; Anhui, Shucheng, Hepengzhen, alt. 300 m, 27.IV.2009, W.Y. Zhan 1, HMAS 197040; Anhui, Shucheng, Hepengzhen, Zhanchong, 14.V.2009, D.Q. Liu 1, HMAS 197041; Anhui, Shucheng, Luzhen, Huangbaicun, 16.V.2009, D.Q. Liu 2, HMAS 196462.

REMARKS: The specimen was associated with a scale insect, *Diaspidiotus* sp. (*Diaspididae*). The Chinese specimens form peculiar 2–3-stratose pillars, characteristic of *Septobasidium kameii* originally recorded in Japan (Ito & Hayashi 1961) but differ in having long spines (0.3–1 cm long).

To date, 19 *Septobasidium* species have been reported in China (Sawada 1931, 1933; Couch 1938; Teng 1963; Tai 1979; Kirschner & Chen 2007; Lu & Guo 2009a, b), including the two species reported in this paper.

Acknowledgements

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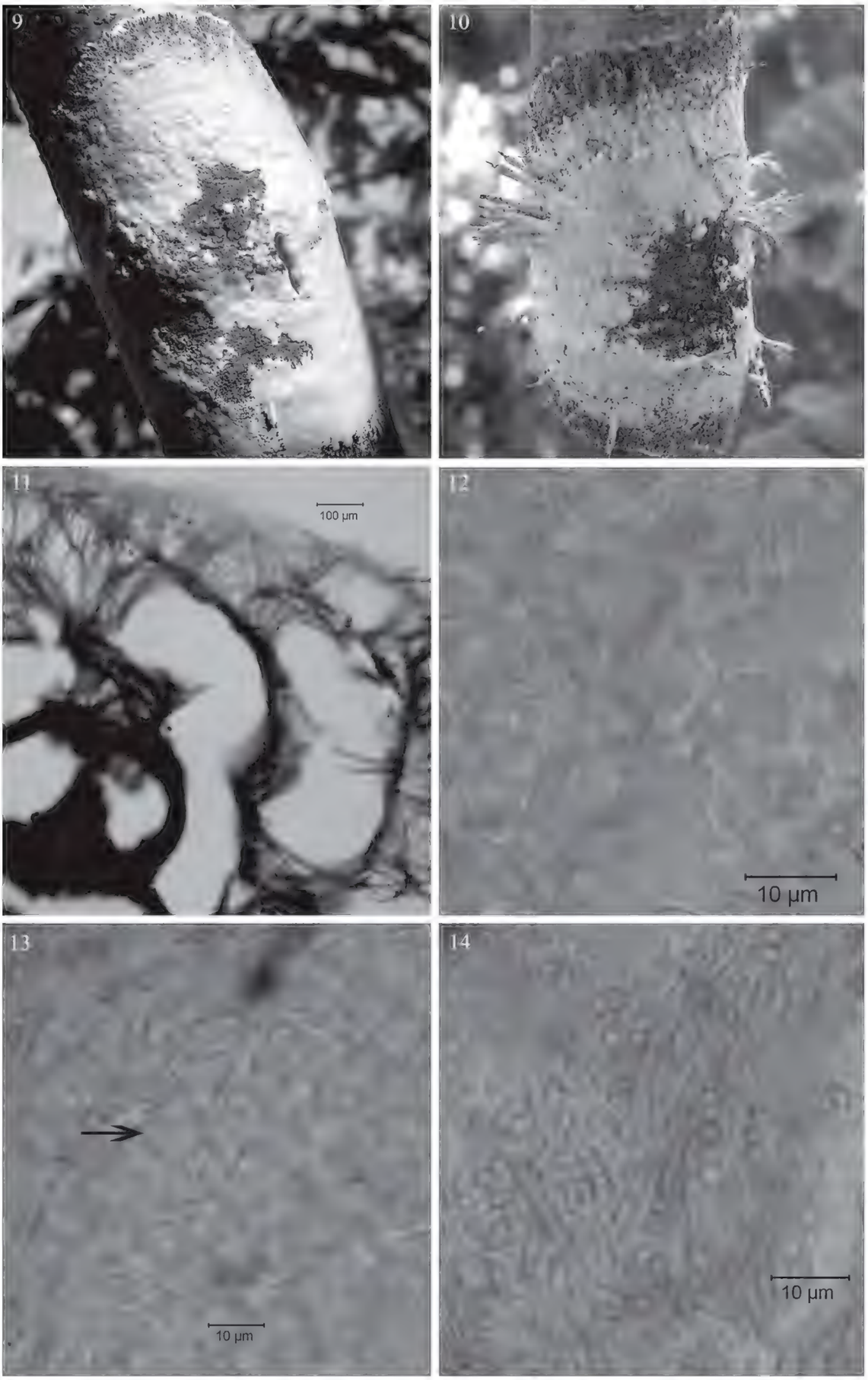
FIGS. 3–8 (to left). *Septobasidium annulatum* (HMAS 59854, holotype). 3. Basidiomata on branches. 4–5. Sections of basidiomata. 6. Probasidia. 7. A basidium. 8. Haustoria.


9
10
11
100 µm
12
10 µm
13
10 µm
14
10 µm

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Figs. 9–14 (to left). *Septobasidium kameii*. 9–10. Basidiomata on trunks (HMAS 196463). 11. Section of basidioma (HMAS 196463). 12. Probasidia (HMAS 197040). 13. Basidia (arrow) (HMAS 197040). 14. Haustoria (HMAS 196463).